The JOURNAL *of* GEOGRAPHY

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VOLUME XXXVI SEPTEMBER, 1937 NUMBER 6

THE LEIPZIG TRADE FAIRS

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Leipzig has been an important trade center for many centuries. Its markets which may be considered the ancestors of the present famous Trade Fairs were of sufficient influence to have been noted in a charter granted to the city by Otto the Wealthy about 1170 A.D. They were mentioned again in "a title deed dated 1268" sometimes considered the year of birth of the Leipzig Fairs, indicating that by this time, the fairs were well established institutions. Margrave Dietrich, ruling autocrat, promised protection to visiting traders from enemy lands even during wars.

In mediaeval times Leipzig enjoyed certain geographic qualities which favored the growth of trade. The city was located at the cross-roads of north-south and east-west trade routes in the state of Saxony, a location advantageous to merchants wishing to exchange commodities in the immediate environs. Three small streams, the Pleisse, Elster and Parthe focus upon this locality. They are of little consequence today, but at that time, they afforded good avenues of transportation. Furthermore, these rivers converge in a manner which made their crossing easier where Leipzig evolved than at any other point in the vicinity. The city is not far removed from the Elbe and Saale rivers, two other busy natural trade routes.

LEIPZIG ADVANTAGES

The physical map of Germany shows Leipzig to be located on the level, glaciated plain fringing the outlying low slopes of the Erzgebirge (Ore mountains) bordering the northwest side of rich Bohemia in Czechoslovakia. It is also at the eastern gateway to the delightful district of Thuringia, lying in the depression between the Harz Mountains and the Thuringian Forest. Only Halle among the nearby large trade centers has a somewhat similar location and could hope to compete with Leipzig for the same trade. However,

Leipzig not only enjoyed the geographic advantages just described but received certain political favors which destined it to out-distance Halle.

In 1497 Emperor Maximilian I, contributed to the economic advantages which the natural setting gave to Leipzig by granting official status to the Fair. In 1507 he arbitrarily ruled that within a radius of 15 German miles (68.5 English miles) no other fair could operate. Thus, Halle, Erfurt and Magdeburg were eliminated from competition and Leipzig's strength in turn was increased as a competitor of Frankfurt on the Main, Nürnberg and still other fair centers.

World Influences

But these advantages were not all. As the trade of Venice, with the Black Sea district declined owing to the rise of Turkish power along the European-Asiatic overland route, Leipzig profited. Goods for central and southeastern Europe came by oceanic routes and entered the continent via the North Sea. Some of this traffic was diverted to Leipzig. Then too, the discovery of the Americas followed soon by the decline of the Hanseatic League, allowed Leipzig to share further in the trade of central and southeastern Europe. Thru the subsequent centuries down to the present, Leipzig suffered from disturbing elements such as the Thirty Years' War, the Seven Years' War, Napoleon's invasion of Russia via routes thru Leipzig, and the World War, followed by bankruptcy in Germany. Nevertheless, each time the city not only came back undaunted but went forward at an increasing tempo. The fair preserved itself just as the city had done.

To appreciate the rise or decline of trade in various regions of the earth, we must be impressed by the fact that until about the 19th century, cities were usually as powerful and influential as states or nations. Cities often came into direct conflict with each other. Thus, the rise of an organization such as a fair was in a large sense dependent upon the strength and fortunes of the city in which it was located.

Changes in Fair Characteristics

Fairs originally were not of the sample type but of the commodity class.* Until the beginning of the 19th century, the business of

*A sample fair is one in which orders for later delivery are taken on the basis of samples displayed, whereas a commodity fair is one in which the goods displayed are sold direct either for money or for other goods.

the fair was retail in character. Groceries, cotton and raw wool had been of prime importance in the Leipzig trade but later gave way to furs, leather and dry goods as the principal commodities. As certain items were dropped, new ones were introduced, such as china, glassware, hardware, novelties, musical instruments, machinery, and a host of other goods, until today the kinds of commodities run into the thousands. Paralleling the shift in types of merchandise there came about a change from the retailing to wholesaling of wares. Today the rules of the wholesale trade are rigidly enforced

Fig. 1. Approach to the Leipzig Fair 125 years ago. At this time, the fair was of the commodity type, merchants coming with loads of goods in their covered wagons to barter with each other. In this scene they are headed toward one of the city gates. Courtesy, Leipzig Trade Fair, Inc.

and the fair is sometimes designated as "The Leipzig Wholesale Fair."

Thus in this transformation from a commodity fair to a sample fair the scope of activities was vastly extended. As long as goods were brought to Leipzig for immediate sale the trading area was largely local, that is, those who came to the fairs lived within a few miles of the city. The limited radius of activity was affected too by the weather and condition of the roads. However, as communication facilities improved and the reputation of the fair as an important market center spread far and wide, the numbers of traders increased enormously. This increase eventually made it impracticable to continue the fair on the basis of direct trading. There

was not the space for storing the goods nor was it feasible for the buyers to try to take home with them the large quantities of commodities purchased. The system shifted to that of sample displays. Today, as a mere incident to the major activities, one may see a few small merchant stands where goods are sold direct, a sort of souvenir from the days of the oriental bazaar, but such sellers do not have official status in the fair.

Fig. 2. A typical street scene in old Leipzig where the carnival spirit sometimes prevails. However, the serious business of the fair takes place quietly in the numerous lofts above the street floors of these buildings. All traffic except pedestrian ceases during most of the day. Courtesy, Leipzig Trade Fair, Inc.

The change from a commodity fair to a sample fair was not easily accomplished. In fact, the improvement in communications which we have just mentioned, tended to destroy fairs. There was no longer need for merchants to visit a central place to see the goods which they bought. The "industrial revolution" made possible the manufacture of goods exactly according to sample. Manufacturers could send their salesmen to visit prospective customers and save the customer the inconvenience of the older methods of doing business. By about 1850 even the Leipzig Fair had outlived its usefulness.

THE FAIR TODAY

Manufacturers of that period located in Leipzig and vicinity did not wish to surrender the good will and other benefits of the fairs. It did not seem right to them that an institution of this kind, centuries old, should be permitted to die. They saw the possibilities of building up a new kind of fair out of the remnants of the former fairs by concentrating entirely upon the display of samples. They

Fig. 3. An aerial view of the permanent buildings of the "Technical Trades" division of the fair. These grounds are as extensive as those of some World's Fairs of a temporary nature. Machinery and other mechanical devices of almost every conceivable kind from many nations, are exhibited here during the Fair periods. Courtesy, Leipzig Trade Fair, Inc.

saw certain advantages in enabling a buyer to view at one center a type of product made by different manufacturers, make his own comparisons conveniently and then select the brand which appealed to him most. Furthermore, with improved transportation and shipping facilities, the list of regions from which displays could be expected was greatly enlarged. Thus, the fair expanded from one involving an exchange of commodities produced within essentially the urban region of Leipzig, to one which today draws upon all the world. In a sense, it is an export and import fair, because the ex-

hibitors sell much of their production for shipment beyond the boundaries of Germany while the buyers of these goods, residents of foreign lands, are the importers. The fair has become international and intercontinental.

The Leipzig Fair has no official connection with the city government of Leipzig, nor is its organization limited to citizens of Leipzig. The fair is managed by an independent corporation. Of course, local business men are interested. The Chamber of Commerce, travel bureaus, hotels and others lend such assistance as they can to further the success of the event because they benefit from the vast throng in attendance. However, all responsibility for the conduct of the fair is assumed by a fair administration known as the Leipziger Messamt, which has its own building and staff for governing the entire proceedings. Nevertheless, the entire city seems to acquire the fair spirit and all lines of business naturally attempt to capitalize the opportunity afforded by the presence of thousands of visitors. Much unique advertising is displayed either in the form of placards and other types of literature or thru the medium of the show window. Humorous advertisements by way of clowns and grotesque figures parading the exhibit streets, arouse the interest of the spectator and attract the attention of the passing potential buyer. In the narrow streets of medieval origin banners and signs in abundant variety displayed from thousands of windows lend color and a carnival aspect to the urban landscape.

Space for exhibitors is available in thirty-one permanent buildings erected for the merchandise Fair in the inner city and eighteen large exhibition halls at the exposition grounds on the city outskirts. The buildings in the inner city house the general trades group, officially called the General Sample Fair and the outlying buildings house the technical group known as the Great Engineering and Building Fair. With the post-war addition of the latter fair there is represented nearly every conceivable type of commodity produced by occidental countries, except perishables—a truly remarkable annual exposition.

EXHIBITORS AND BUYERS

Altho exhibitors in the earlier years of the Leipzig fairs were almost entirely from the state of Saxony, today they come from all parts of Germany, from neighboring countries, and from over-sea. They total annually about 8,000, 12 per cent of whom come from foreign lands. Foreign buyers number into the thirty thousands and German buyers about 180,000. In all, seventy-four countries

were represented at a recent fair. Exhibitors came from twenty-four countries, about sixty of them from the United States. Sightseers constitute about 12,000. A fair which can bring to its doors such large numbers of buyers representing wholesalers and dealers from all quarters of the globe merits high regard.

Thus far, we have considered but one fair. Actually there are three fairs held annually, one in the spring which we have been

Fig. 4. Furs from everywhere. Such scenes as this one are characteristic of the January fur sales, a form of commodity fair. Leipzig ranks as the world's foremost fur dyeing center and one of the leading centers for the sale of all types of furs. Courtesy, Leipzig Trade Fair, Inc.

discussing, one in the autumn and a third in January, the last one often called the January Fur Sales, but in every respect a trade fair. The Autumn Fair, nearly as important as the Spring Fair, is held, usually, the latter part of August and early September.

THE FUR FAIR

The Fur Fair operated independently of the Leipzig Trade Fairs, is notable. For many decades until the World War, Leipzig

was not only the world's principal fur dyeing center but enjoyed a monopoly in this respect. Now it has competition in the United States. At one time, it was the world's largest fur collecting center and primary market, but today London is an important rival. Many United States fur buyers visit Leipzig's Fur Fair to purchase dyed pelts, some of which are of North American origin. These men may view a wide assortment of furs from all parts of the earth, pelts sent to Leipzig to be dyed under the skillful supervision of the best dyers. The Fur Fair is a commodity fair, for in this instance buyers see all of the furs which they purchase. There is little buying from sample. However, they themselves do not take home the skins, the seller making the shipment.

Other Sample Fairs

Until the World War the Leipzig Sample Fair was the only important one of its kind. Nizhni-Novgorod (recently named Gorki) in the U.S.S.R. was the scene of a unique commodity fair and gained world-wide fame but never attained the size or economic importance of the Leipzig Fair. Since the war, cities in other nations and other cities in Germany as well, have adopted the Leipzig idea and are holding annual trade fairs, but none of them is comparable with the Leipzig Sample Fair. Thus, these great fairs have persisted and have acquired renewed energy in the post-war era, as other centers have seen fit to foster the fair as a device to increase both national and international trade.

Summary Statement

Each of the fairs presents in a way, a cross-section of the economic-geographic activities of a local community or a nation. Each displays not only the major commodities used direct by the masses, but the raw materials which originate within the respective countries and a number of those imported for use in local manufactures. Many of the commodities reflect the economic and social activities growing out of geographic conditions. Wearing apparel, sports equipment, cooking utensils, color finishes, textile materials all tell their own story of the natural environment in which they have been developed. We may see in these fairs a combination of geographic, economic and political elements at work, but in no case is the success of the particular fair independent of the geographic setting in which it has arisen.

THE ATTRIBUTES OF PLACE*

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To present to the members of the National Council of Geography Teachers the concept of place, and the attributes of place, as the essential core of the science of geography, may be carrying coals to Newcastle; but the growing importance of geography in our educational system would seem to justify attempt at a statement of the essential theme of our science, definition of the field which we have preëmpted, and which we may reasonably defend as our proper realm of research and endeavor.

The contraction of distance by improved facilities for communication and transportation and travel, the intimate interdependence and mutual interest of all lands and peoples, has transformed our whole world—our whole Oikumene in classic parlance—into one neighborhood where no people may live in ignorance of the rest of its folk. Only geography can provide the knowledge necessary to such intimate neighborliness.

Tho geography in America has not even yet attained the degree of influence and utility that it has achieved in most of the countries of Europe, it is slowly but surely pressing forward to a position where it will be indispensable, both in the cultural and professional aspects of education. The potential rôle of geography in future cultural, professional, and industrial activities of the world is apparently not fully appreciated by educators themselves, possibly not fully realized even by our teachers of geography; but certain it is, that the time is now at hand when there can no longer be any doubt of its educational value in the school curriculum. It is because of the inevitable place in our educational system that geography must very soon occupy, that any attempt to clarify its principles or to define its content, is justifiable. It is in this belief that I venture to lay before you in this paper the concept of place and its attributes as the very essence of geography.

THE ATTRIBUTES OF PLACE

Thruout history the concept of place has been the criterion by which fact and principles are popularly and generally classified

* Presented at the meeting of the National Council of Geography Teachers, Syracuse, New York, December, 1936.

geographic. To the lay man the world over, geography relates to place; and it is this historic and popular concept of place, and place attributes, upon which the whole science and discipline of geography have been formulated and established.

The fundamental concept of history has ever been time and time sequence; of biology, living organisms and their form and function; of astronomy, the heavenly bodies and their spatial relationships. Whenever we say botany we think of plants; whenever we say ornithology we think of birds; whenever we say mathematics we think of numbers; and so, whenever we say geography we just as naturally, and just as surely, think, or should think, of place.

If place be accepted as the essential concept of geography then the content of geography can be logically and reasonably determined. Its discipline can be definitely established upon the criterion of place. Its field can be definitely restricted to the attributes of place, and by the boundaries set up in that criterion. Facts or principles that involve the concept of place in any of its attributes or relationships, thus become definitely geographic, and amenable to geographic discipline. Fact or knowledge that does not apply to an attribute or relationship of place is not properly geographic, however significant it may be in itself.

All place relationships or attributes of land forms, or rainfall, or ocean currents; of maize, or micro-organisms, or soils; of man, or language, or even of farm walls and fences; all or any of these fall within the proper definition and field of geography. We might with equal propriety speak of the geography of man; of the geography of soils; of the geography of disease; of the geography of corn; or of highways and bridges even. The criterion by which we decide whether or not a fact or principle, or any body of knowledge relating to anything, is geographic, is whether or not it involves the concept of place and its attributes. The three essentials in every situation, in every drama, are the time, the place, and the thing; and as time implies history, so place implies geography.

The Fields of Geography

The earliest geography was chiefly concerned with local attributes of place. Because travel and trade were long restricted by ineffective technique and inadequate equipment, the horizons of early peoples were naturally close, and place knowledge intimate and personal. With development of navigation and expansion

of discovery and exploration, place knowledge became widely extended, the most fundamental attributes of place became the concern of geographers, and map-making based upon the discovery and description of places, flourished as never before or since. The geographer's major interest then lay in location itself, that is in place itself, and its attributes lapsed into minor interest.

With discovery and exploration in large part completed, the concern of geography turned to special attributes of place; and out of the mass of knowledge collected and accumulated from world-wide discovery and exploration, a number of new sciences were developed, some of them distinctly related to geography, in that a large part of their fact was more or less resultant upon the study of place, even tho their major content came finally to be quite independent of place relationship.

PHYSICAL GEOGRAPHY

For a long time physiography, including oceanography, dominated geography, because land form—relief, contour of coast, drainage, and so forth—and sea characteristics—currents, tides, salinity, and so forth—are so fundamentally a part of the place concept that they can not be separated from it. During this period physical geography consequently and naturally played an important rôle in the subject matter of the school curriculum. The facts of physical geography still remain so important a part of the complex of place attributes that they can not be neglected or ignored in any study of geography.

Similarly, climatology includes such fundamental place attributes and relationships that geography is not complete, and can not be taught, without reference to the facts and principles of climate. Climate is as indispensable a part of geography as is physiography. No place is without climate. Climate is a major and inalienable attribute of place. Climatology is thus not a subject related to geography, but necessarily and inescapably a part of geography. There are few, if any, facts or principles of climatology which are not directly attributable to place; hence climatology must ever be included as one phase, and a major phase, of geography.

It might be well to point out that the ultimate control of climate is extra-terrestrial; that it is to the radiant energy from the sun primarily that the phenomena of climate must ultimately be ascribed; but it is upon the qualities of terrestrial place, chiefly its physiographic and oceanographic characteristics, that all varia-

tions in the elements of climate are determined. Likewise, tho some of the attributes of place included within the context of physiography and oceanography depend upon the almost infinitely and long time sequence of events that form the province of historical geology, most of them are related to other contemporary factors even more closely.

The newly organized and newly established soils science, because so much of its content is dependent upon the attributes of place, is closely related in many ways to the several phases of geography. It is distinctive in that it affords the most complete and composite measure of other attributes of place. Soils are more expressive of the aggregate current environmental factors at any place than any other phenomenon. Relatively, they are "the present day product of the present day environment." They are little affected by the long geologic evolution of the parent material of which they are formed, and of the land forms upon which they are distinctively developed. They reflect every attribute of the climate of their place, without being significantly affected by the direct action of the sun, which so closely controls climate. They have no vital power within themselves of adapting themselves to any influence, either consciously or unconsciously, genetically or individually, as have plants and animals. They are not mobile. They have no power of volition or of wittingly modifying their environment as has man.

Consequently they manifest more or less directly and obviously the effects of nearly all attributes of any place—the character of the underlying rocks and the surface terrain; the depth of the water-table, the adequacy and trustworthiness of rainfall and of season, and the vicissitudes of temperature and humidity; the character and extent of plant cover and animal life; and above all many of man's activities as they affect the land itself. Soils geography henceforth bids fair to afford one of the most satisfactory and illuminating opportunities for the application of a strict geographic discipline.

Biogeography

The biogeographic attributes of place, which logically fall within the purviews of plant geography and animal geography, introduce a number of new and distinctive qualities and concepts. All organisms possess within themselves, in lesser or greater degree, the power of adaptation, the vital response of all organic life to the

elements of the environment. The quality of adaptability is not a fixed, but a decidedly variable factor, which shapes each plant, and the vegetation of which it is a part, to a definite character and function. Animals as a group possess as much genetic adaptation to the factors of their environment as do plants, but individual animals represent rather fixed form and size, quite in contrast to the wide variability in size and form of single plants.

Few individual plants have the quality of mobility which most animals, including man, possess to a distinctive degree. Their mobility enables animals generally, or in some measure, to escape from one environment that might prove unsatisfactory or disastrous, to an other that might, or might not, be more tolerable. Animals can modify their adaptation to one environment which has affected them, by their response to another into which they migrate. Adaptability and mobility constitute two very important phenomena that modify the attributes of place tho they are not in any wise attributes of place as such, but of organisms. Plant and animal geography are thus phases of geography vital to teaching.

HUMAN GEOGRAPHY

Because he is adaptable as plants and animals, more mobile as a genus than either plants or animals, and in addiiton possesses that distinctive—we might almost say divine—power of electing his own course, of not only choosing for himself his own way, his own haunts, his own manner of life almost, and his own environment, but of modifying according to his own wish, his own likes and dislikes, the environment which affects him; because of all these prerogatives, man occupies a distinctive place in the geographic complex. By his own volition and his own efforts he can profoundly, tho only within definite limits, alter the attributes of his selected place. He not only possesses the power of adapting himself to his environment, but of consciously adapting his environment to his own comfort and convenience. It is a power which plants possess in some degree but unwittingly, and absolutely without volition, and which animals possess in greater or lesser degree, but not in the same sense or to the same extent as man. Man by his mobility may escape the attributes of a place that does not suit him; by his adaptability he may and does adjust himself both consciously and unconsciously to attributes of the place that he chooses, whether

they suit him or not. Most significant of all he may, by his wit, alter many of the attributes of place that affect him.

Thus human geography becomes the phase of our science most complicated and generally most indirect and involved. Many of the attributes of place as they affect man are so obscured as to become wellnigh obliterated, and we find it difficult to apply the criterion which determines whether or not the fact or the principle which we are teaching is truly geographic; but none the less we must scrupulously and rigorously subject our material to this essential requirement of place, or we shall be wholly unable to apply the strict discipline of our science to our teaching. To confuse the attributes of place with the attributes of time, or of anything else—whether it be plants, or stars, or industry—as we are now so prone to do in "fused" or "integrated" courses, is to prostitute the cultural and utilitarian value of our science to purposes which it cannot in any way serve. The rigor of geographic discipline, the guidance of geographic philosophy, we can only achieve by strict application of the essential concept of space, as a criterion. Only when we adhere to this discipline shall we inevitably achieve the integrity of geography.

Human geography, peculiarly egocentric, or anthropocentric, we might better say, has naturally and properly become the principal objective of most geographic teaching. Whether it be economic geography, political geography, or some aspect of anthropogeography that we teach, it is man's place relationships that have become our chief concern. Unfortunately, because of its involved character, it offers the greatest difficulty in the application of strict geographic discipline. Consequently it has all too often wandered far afield in the material which it presents, in many cases encroaching quite unjustifiably and unnecessarily into other fields and upon other distinctive disciplines.

Approaches to Geography

The discipline of geography may be oriented in a multiplicity of directions, as for example, topical geography, comparative geography, regional geography, or a number of others, each with its own advantages and its purposes. The objectives of any approach may be, and generally are, as fully geographic as the others, provided that the essential concept of place and place relationships is conserved and applied.

The topical approach, particularly in the several aspects of human geography, offers the gravest hazard of departure from geographic discipline, in that the attributes of place are more or less concealed under a mantle of social, economic, and political phenomena only remotely, indirectly, or indistinctly related to place. The study of artifacts, foods, homes, or language in anthropogeography; the study of industries, commodities, routes of trade and travel, or finance in economic geography; the study of institutions, governments, treaties, or international relations in political geography; all offer so many attractive and productive avenues of research and study other than those leading to or from place, that it is difficult to adhere to the way of place discipline, which is the geographic discipline.

Comparative geography is less likely to lead away from its discipline, because the bases for comparisons and contrasts are almost invariably those of place or locality. The attributes of one place are compared with similar attributes of other places, and the composite character of the places compared is thus developed. Thruout comparison the concept of place dominates the study, the teaching. The comparative method in geography lends itself naturally and hence, easily and effectively, to the discipline of place and its attributes. It constitutes a most stimulating approach to geographic problems.

Regional geography, in America at present the most popular approach or method in the teaching of geography, possesses distinct advantages for the use of place discipline. The region is merely a collection of places grouped upon the bases of some convenient, distinctive, or peculiarly useful attribute, or composite of attributes, which the places possess in common. The regional map constitutes a classification of attributes that can be graphically portrayed. The regional approach holds facts and principles strictly to geographic discipline; but it possesses the inherent danger that in the minds of the students, and perhaps of the teacher as well, the region assumes a distinct natural entity, instead of remaining merely a classification represented graphically upon a map. The character, degree or extent of attributes chosen as criterion for delimiting the region is purely conventional in almost every case, and has no basis in reality, however real the purpose it may serve. Yet withal, for many, perhaps for most, purposes, the regional approach or method when properly followed is most strictly geographic of all in its discipline.

SUMMARY

The purpose of this paper has been to emphasize the significance of place and its attributes in the organization of the science and discipline of geography. Without such discipline as the application of place criteria affords, geography ceases to be geography and becomes part of some other science. The discipline of geography, if the concept of place and its attributes be accepted as the core or essence of our science, is a distinctive and valuable element in cultural and professional education that cannot be neglected. It should not be dissipated by confusion with other valuable and useful disciplines.

If the paper has helped to crystallize the meaning and scope of geography, to clarify the objectives of our geographic study and teaching, to evaluate briefly the rôle of some of the phases of geographic lore, and to appraise even more briefly the merit of some of the approaches to geographic research, it has more than served its purpose.

THE LIFE-GIVING DEAD SEA

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"Life evermore is fed by death,
In earth and sea and sky;
And, that a rose may breathe its breath,
Something must die."

So in "Bitter-Sweet" wrote J. G. Holland of the service which is essential to life on the earth.

For ages the most remarkable body of water in the world has been receiving living waters but, stored within its basin, these waters lost their life-supporting qualities and the great body of water, because of its destructiveness to life, came to be known as the Dead Sea.

The waters of this sea are so free from sediments that far out on the surface at a depth of 20 to 25 feet the pebbles upon the bottom are clearly visible. The water while blue and beautiful is bitter and deadly. No plant or animal life exists in the lake. The absence of water-fowl has been ascribed to the presence of noxious gases over the water but the real cause is the lack of fish.

Not only has this sea meant death to plants and inferior animals but it has been the means of destruction of men for an early chapter of its story records the destruction of the cities of Sodom and Gomorrah. Some archeologists think the cities of destruction are buried beneath the Dead Sea.

LIFE FROM A DEAD SEA

It has been found that this sea so heavily charged with minerals is the world's chief source of materials which are essential to the life of agriculture and many other of the essential industries of the world.

The current Dead Sea is 47 miles in length and in width reaches from the eastern to the western boundary of the Ghor, the maximum distance being 9.5 miles. Its surface area is 340 square miles lying 1292 feet below sea-level, and its greatest ascertained depth is 1308 feet. Lying in the deepest depression on the surface of the earth, the Dead Sea has for centuries been receiving the waters (fresh and sweet) of the Jordan and other streams. Each day this enclosed body of water receives seven tons (1,750,000,000 gals.) of water from its tributaries.

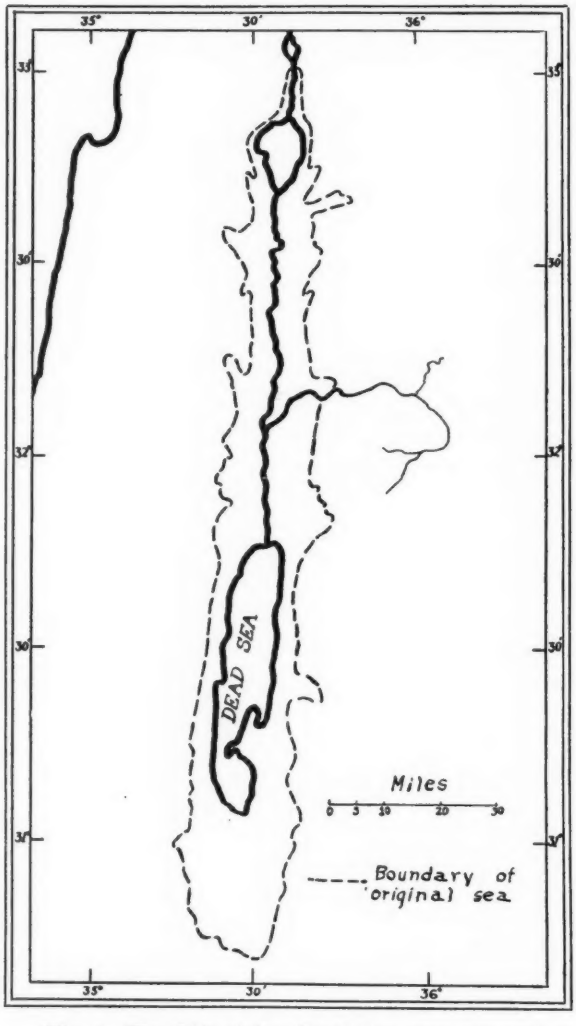

Fig. 1. The Life-giving Dead Sea once covered an area probably four times that of its present limits.

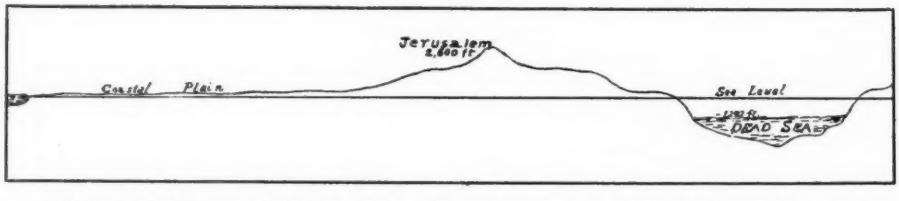

Fig. 2. A Diagram of the Dead Sea depression. The surface of the sea is 1292 feet below the level of the ocean.

The original sea was three or more times longer than the present Dead Sea. At its maximum area it extended about thirty miles south of its present limit and northward beyond the Sea of Galilee.

EARLY KNOWLEDGE OF THE DEAD SEA

The unusual nature of the Dead Sea has long been known. About 65 B.C., the Greek geographer Strabo wrote of his impressions of the destructive-to-life sea. Apparently no organized attempt was made to survey this body of water until 1835 when an unsuccessful expedition was led by Castigan, an Irishman. Following this British, French, American, and German societies undertook scientific explorations for the study of the origin and peculiarities of the sea. No study of the feasibility of a commercial use of the minerals dissolved in the waters of the Dead Sea was made until 1911. The result of a prolonged and detailed survey was the establishment of industrial plants for the extraction of the mineral wealth.

RESEARCH WORK

Due to the shortage of potash during the World War the British Government during 1918-1919, and 1923-1924, undertook researches of the Dead Sea brine.

The analyses, made in the government laboratories, London, of the many samples taken at various depths, show the approximate quantities of salts in the Dead Sea. These when converted into marketable form are materials that the world needs.

Potassium Chloride (KCl)	2,000 million metric tons
Magnesium Bromide ($MgBr_2$)	980 million metric tons
Sodium Chloride (NaCl)	11,000 million metric tons
Magnesium Chloride ($MgCl_2$)	22,000 million metric tons
Calcium Chloride ($CaCl_2$)	6,000 million metric tons
Calcium Sulphate ($CaSO_4$)	120 million metric tons

The Jordan and other tributary streams are adding to this supply constantly. It is estimated that 40,000 tons of potash are added annually.

THE WORLD'S NEED OF POTASH AND BROMINE

Potash is used in a number of widely different industries as electroplating, photography, medicines, tanning, dyeing, and in the manufacture of soda, glass, matches, and explosives. But its chief use is as a fertilizer for about 92 per cent of the total supply of

potash is used in the manufacture of fertilizers, while all the other industries in which it has a part use 8 per cent. Field tests, experience and observation of agriculturists show the necessity for potassium in crop production.

Soils are being depleted of their fertility with alarming rapidity. The continuance of high yields of crops—in fact the yield of any crop produced with profit—is dependent upon the restoration and the continuance of the fertility of crop lands. Abundant life will not spring from the soil unless certain materials be present. Some of these are found in but few parts of the earth, the least widely distributed being potassium which is so essential to the growth of plants. Of the average total content of commercial fertilizer 3.5 per cent is potash.

Bromine is widely used for medical purposes, in photographic work, and in analytical chemistry, but its chief use to-day is in the manufacture of tetraethyl lead which, when added to gasoline, gives new life to motor engines and insures their smooth running.

POTASH AND BROMINE FACTORIES

In 1931 factories for the extraction of potash and bromine began operations. The extracting plants are peculiarly blessed in developing a unique manufacturing process, with climatic conditions which are remarkably favorable. Except for a very brief period during the winter the sky over the Jordan Valley is so nearly cloudless as to maintain solar radiation thruout the year. The maximum temperature in the sun is high, reaching 167° F, therefore, solar evaporation is notable and swift. The evaporation, which amounts to 90 inches a year, is effected in large concentrating pans constructed on the impervious clay flats surrounding the Dead Sea. At present these pans cover an area of about 1,000 acres. The pans are separated by wooden dams filled with earth, and are so arranged as to allow a continual sluggish movement from one pan into another along the gentle slope towards the Dead Sea. They are constantly supplied with brine pumped from a depth of 175 feet below the surface, since at this depth the content of potash and bromine is double that of the surface water.

Rapidity of production could be increased by spraying the brine into the pans and thus hastening evaporation. Common salt is the first deposit in the pans, followed by "carnallite" crude potash, which is decomposed in the refinery and muriate of potash produced. The residual liquor after the removal of the carnallite is

almost six times as rich in bromine as the residual brines from the production of potash in Germany, therefore, Dead Sea brine is the richest known source of bromine and, as a by-product from the production of potash, the manufacture of bromine is carried out readily and cheaply.

During the first year of operation 13,000 tons of crude potash

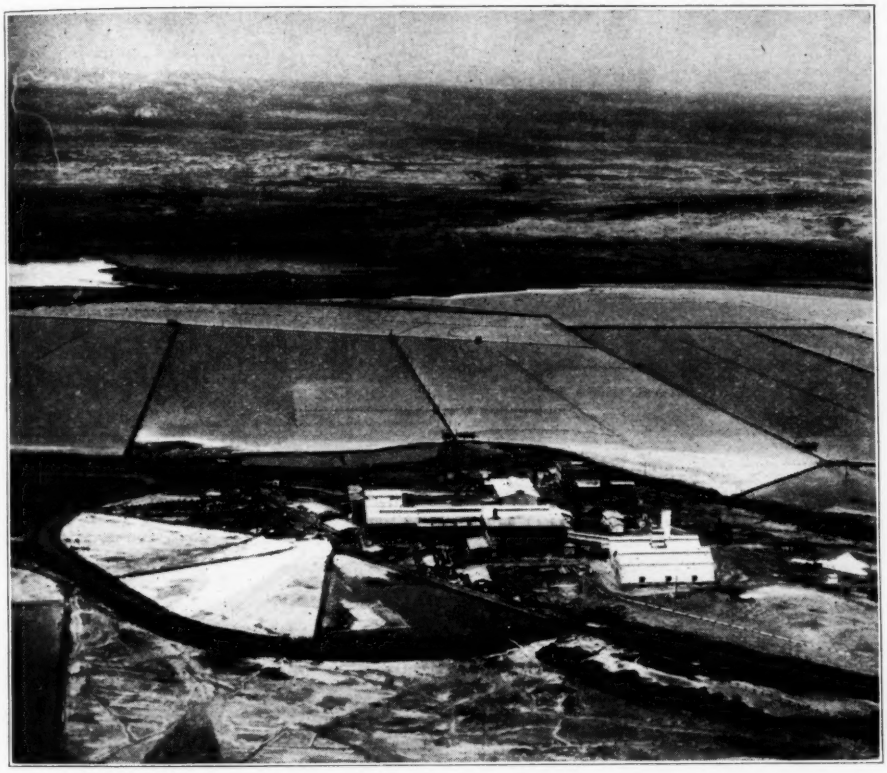

Fig. 3. Refinery of the Palestine potash works. Courtesy, American Colony

salts (carnallite) were harvested. Two bromine plants are successfully operating at the Dead Sea. The first was completed in 1931 and has a production capacity of more than one ton of refined bromine daily. The second plant, erected in 1932, has a production capacity double that of the first. The products produced are of good quality and find a ready sale in the world markets.

OTHER PRODUCTS OF THE BRINE

The plants for extraction of potash and bromine from Dead Sea brine are yet in their infancy but while established primarily

for the purpose of securing the aforementioned products, other materials will be taken from the waters as markets for them arise. After the extraction of the potash and the bromine, the final brine contains the chlorides of magnesium and calcium both of which can be extracted readily by easy methods. Some magnesium

Fig. 4. Evaporating pans and homes of employees at the potash settlement. Courtesy, American Colony

chloride has been produced recently. Because of the absence of iron from the brine, it yields a salt (magnesium chloride) of exceptional purity. Chemical and textile industries are the chief users of magnesium chloride.

Since more calcium chloride is produced as a by-product of other industries than is needed, removal from brines is not profitable. However should there be a market for this salt, it can be easily extracted from the Dead Sea brine.

ANCIENT USE OF DEAD SEA BRINES

The first records of the occurrence of salt are in the Bible. Salt has been used for so many centuries that it is impossible to determine the date of its discovery or its use as a seasoning for food. Some people think it was first found in the form of exposed rock salt, the licks used by wild animals. However, the majority believe that man first found salt as crude deposits left by the evaporation of salt brines. Most if not all of the salt used in Biblical times was made in shallow-basins or evaporating flats along the shores of the Dead Sea. The intense rays of the sun evaporated the confined water leaving crude salt. Great caravans of camels or donkeys carried this salt to the markets of neighboring countries. Some salt is still obtained from Dead Sea brines by solar evaporation.

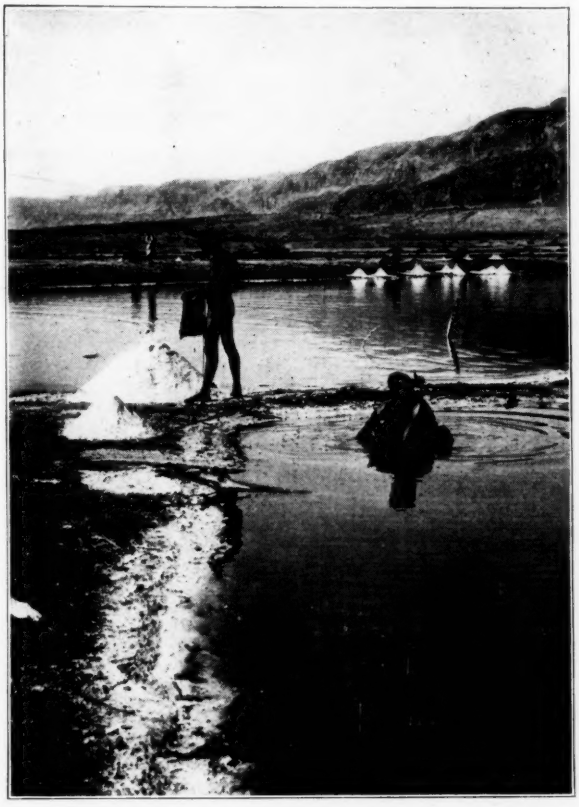

Fig. 5. Collecting salt from a lagoon. Courtesy, American Colony

BITUMEN FROM THE SEA

Palestine has been known as a source of bitumen from ancient times. A pure bitumen from the Dead Sea was so abundant as to give the sea one of its popular names, the Asphalt Lake. Bitumen is found at many points along the shore of the sea, but the chief masses are on opposite sides of the sea, and indicate that the Dead Sea bitumen originated from extrusions from fissures in buried strata. Large quantities come to the surface and drift ashore in the periods immediately following earthquakes in the region.

The Dead Sea bitumen is jet black in color, possesses a strong smell of crude petroleum (locally it is called stinkstone) and is practically free from impurities. As the production of bitumen from the Dead Sea and the surrounding area is small (not over 100 tons a year) its commercial importance is not great. It is used for carving souvenirs, as an ingredient in molding compositions, and may serve for making varnish and insulating cables.

SULPHUR

In the region of the Dead Sea, sulphur occurs chiefly as a decomposition product of gypsum; therefore, while it is very widely distributed its occurrence is so scarce that it is of little economic value but the Bedouins do collect it for medicinal use.

AN INLAND WATERWAY

The Dead Sea furnishes limited navigation. Considerable wheat is imported from Moab of Transjordan. During the World War the Turks found they could shorten the route to Jerusalem some days by shipping the wheat by boat across the Dead Sea. An organized company is developing inland shipping. A few small sailing boats and motor boats transport passengers from shore to shore.

LIVING QUARTERS FOR WORKMEN

The extraction of minerals from the Dead Sea is so recent an undertaking that the facilities for comfortably caring for the employees are not yet all that is desired. Some of the workmen live in mere huts but the majority are housed in desirable permanent concrete buildings. For the unmarried workers excellent meals are served in the commons at a reasonable rate. A reading room, library, and bathing accommodations with fresh water showers are maintained for the employees. Jerusalem may be reached, over a hard-surfaced road, by regular bus in one hour.

Despite the high temperatures, the prevailing breeze and the relief from perspiration by the rapid skin evaporation, insure labor conditions sufficiently comfortable for efficient results. Water from the Jordan is purified and provided for drinking and domestic purposes.

CAPITAL AND LABOR

The capital of the company as established for extracting minerals from the Dead Sea was $2,000,000. It is interesting to

note that the shareholders include members of the three communities of Palestine Jews, Arabs, and British.

In 1935 the capital stock of the company was increased by $104,000, a large part of this to be used for the erection of a factory at the southern end of the Dead Sea.

A fact, worthy of note and a source of great satisfaction to all concerned, is that in these factories Arab and Jewish laborers work next to each other in perfect accord.

TRANSPORTATION AND MARKETS

The development of the export business is handicapped in two ways: difficult and costly transport and inferior port facilities which require much handling and a lighterage form of loading. At present the salts manufactured from Dead Sea brine are carried the twenty-six miles to Jerusalem by auto trucks on a first class road, and from Jerusalem by rail to Haifa or Port Said. Transportation from the factories on the Dead Sea to Jerusalem has a great drawback in the climb from —1280 feet to +2500 feet.

The products of the potash and brine factories are of good quality and find a ready sale in the world markets. The soap and other local industries use considerable of the products. Practically all the bromine produced is sold in England. Potash from Palestine has a far flung market, 924 tons going to the United States in 1934.

CONCLUSIONS

Many times statements similar to the following have been made: "The Dead Sea gives out nothing—always receiving but not sharing—hence abhorred by man and beast." Science and industry disprove such statements. The Dead Sea is a life-giving sea. It provides minerals essential to the life of agriculture and industry. Of some of these (e.g. potash) it can supply the needs of the world for centuries at the present rate (2,000,000 tons annually) of consumption. Its waters provide a channel for commerce relieving long tedious caravan transportation.

The Dead Sea will provide new life in the economic rehabilitation of Palestine for the exportation of the minerals extracted from the Dead Sea will materially aid in the overcoming of the present large unfavorable balance of trade.

ALASKA-YUKON: UNIQUE ADJUSTMENTS, YET UNSUNG

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The radio, newspapers, and newsreels frequently feature incidents connected with Point Barrow, Matanuska Valley, Dawson, the Yukon River, and the Yukon Territory. Similar publicity has been given to the gold miners and their exploits, to the fabulous salmon catch and the canneries, to perilous trips with dog teams, Yukon steamers, and airplanes.

There are, however, always a number of incidents connected with the human occupancy of the Alaska-Yukon that gets little or no publicity. Some of these are recounted in this article as they were observed by the author in the summer of 1936.

GASOLINE AND THE UBIQUITOUS CAN

Significant as the Yukon is to the Interior during the four busy summer months when its boat service is coupled with its rail connections to the coast at Skagway and Seward, its closure with ice brings the motor-driven vehicles and dog teams into prominence. The airplane is, therefore, its year-round rival. The servicing of gasoline to the motors is done from five gallon tins, each encased in a wooden container, brought in during the summer while the river is open. These cans filled with California gasoline are wharfed at Skagway and hauled 110 miles over a narrow gauge rail, over the White Pass, to Whitehorse, Yukon Territory. There the cans are transferred onto a shallow flat-bottomed barge which is attached to a steamer and pushed downstream. The cans are distributed at various intervals along the Yukon, usually at the mouth of an easily found tributary stream. There need be no dock, nor sign of habitation, just a creek and a tree to stay the boat. The valleys serve as paths into the interior, especially in "upper" country where the bluffs are steep and the easiest entrance to the uplands is afforded by the easier gradients of the valley terraces. Since Fairbanks is not on any navigable stream, and is the base and headquarters of the Pacific Alaska Airways, its supply of gas must be trucked 100 miles over the Richardson Highway from Circle on the Yukon, brought in by freight planes, or transferred from the barge to the government owned railroad at Nenana.

The distribution of this gasoline is wider than one might anticipate until one learns that, tho the air lines converge at Fairbanks, their terminal bases are somewhat elastic, and chartered planes may take one to remote locations. Since these locations may not have landing fields the planes are equipped to land on wheels or pontoons, or on skiis, depending on the character of the terrain and the season.

When the gasoline container is empty, adjustments for the ubiquitous can begin. One finds them with the tops removed and wire handles added, serving as water pails for the miner, trapper, woodcutter, and the steamer's cook. Even the residents of Fairbanks, "The Golden Heart of Alaska," may buy water delivered in these cans. If the water is carried far, a shoulder yoke may be used. A thin board about the size of the can opening floats as a cover to prevent spilling, as the bearer trudges along a rough path or over a rotting elevated sidewalk.

Other cans are cut open and made flat. These pieces are used for patching sleds, houses, boats, or even strengthening airplane skii. Other strips are wrapped around the supporting posts of the elevated log caches. These strips make it impossible for small climbing animals to reach such supplies as the stored winter foods, skins, and leather harnesses. A road-house at Yukon Crossing (on the Winter Road and Yukon River) is shingled with such flat pieces, reminding one of Mrs. Wiggs—and there is a garden patch! A flat strip of the can may be inserted into a slit in a stove-pipe in a summer tent-house to serve as a fire-regulator or damper.

For other uses the top of the can is left intact, but one of the larger sides is removed, or partly removed, and the rest turned back to give extra support. This may serve as a dish-pan, a pan for cooking cereals for man or dog, or for a laundry tub. The other laundry equipment is often a home-made wooden-handled plunger made of a large can that probably contained condensed milk. In this can holes are cut to permit the free circulation of air and water. Any day is washday in this region of men.

Cold Winters and Frozen Subsoil

The individual gold digger in the Interior exploits only the upper three to six feet of mantle rock which thaws out in summer. Below that the ground is always frozen. Gold deposits below the frozen subsoil can, therefore, be reached only by the operation of

big dredge companies which thaw the ground preparatory to the operation of the dredges. Since the thawing is a slow process, each company has one or more dredges working in one location while another area is being thawed preparatory to next summer's dredging. Originally steam was used, but even with cold water deeper thawing is done in one summer than the next winter can re-freeze.

Since bed rock is not readily accessible below this frozen subsoil, building materials for the larger structures are not of stone but of reinforced concrete or wood. The foundations rest on frozen ground, which is reached below the surface material that has been "stripped" after a thaw. Ground fires of brushwood hasten the stripping. The four story Federal Building at Fairbanks built a few years ago shows that no serious settling has taken place on this frozen foundation. When the buildings are of logs or sawn timber the fire hazard is enhanced by this frozen subsoil. In Fairbanks the water mains are kept empty until the fire alarm sounds. The hydrants, placed only in the business block, are enclosed in insulated wooden boxes to prevent freezing. To the casual observer they suggest the red tool boxes used by our street departments. The frozen subsoil is a further hindrance in getting an underground flow of water, and consequently, wells are few.

All buildings, whether log cabin, school, hospital, or hotel have an opening for ventilation near the ceiling of each room. The opening reminds one of a hole for a stove pipe or a hot air register. The opening may be screened, slatted, or left open. Some are adjustable, others are opened or closed with a rag or cloth. These ventilators are a direct adjustment to the extreme winter's cold. Without them, when the room temperature is 65° F. or more, and the outside registers a low subzero temperature, the hotter air near the ceiling causes the ceiling to "sweat" and the room is damp, uncomfortable, and unhealthful. With the ventilator the greatest heat escapes and the room does not sweat. Rime festoons the outer opening, taking on added size and beauty as the winter advances.

Another adjustment reflected in the construction of buildings is the entry, noticed especially in public buildings. The entry-room is a step or two lower than the main floor. It is wide enough so that the outside door is closed before the inner door is reached. Thus, the cold air, being heavier, is trapped as in a well, and drafts on the floors are eliminated. Much of the cold air within the homes is due to lack of insulation beneath the cabin floor.

SUMMER PROBLEMS

Dog teams are of no use in the summer and may, in fact, be a nuisance. If the trapper (the miner rarely has a team) goes "out," or to the trading post on the river, or turns to fishing or working for a mining company (which is less likely) his team is a handicap to him. If turned loose, the dogs would run wild and be a loss. So certain individuals have made a business of "boarding" dogs for the summer. The boarding places are usually near a settlement or along the Yukon where transportation by water brings the dogs with the first boat, and takes them back to their owner with the last boat of the season. Only the dogs of the white settlers are sent to "board," as the Eskimo and Indian settlements (or villages) care for their own teams. Each dog is tied alone, as even the best of team-mates fight. The dogs need shelter from the glaring sun and plenty of water. Boxes or bushy willows supply the former; a slough, river, or pump near a stream, the latter. A long chain with both ends snapped in the dog's collar goes around a stake or post. The post and chain length mark the summer's world for the dog. Dried fish or smoked caribou are the diet, with gruel and cooked scraps as the winter working season approaches.

As the days of summer lengthen and gardens are planted, provision must be made to keep the seeds from rotting in the cold wet soil. So in order to utilize the heat of solar radiation, the seeds are barely covered with earth. As the seeds germinate, more soil is hilled around the plants, while trenches around each garden bed provide the necessary drainage from the bog below. Many of the greenhouses, reflecting the orgy of spending in the gold rush days, and the need for fresh vegetables, may be dilapidated but they produce lettuce, radishes, and tomatoes, which pay better returns than cut flowers. In lieu of the latter, paper flowers may have to suffice in the decorations of the graves, even as painted boards serve as markers.

CONCLUSION

The coast, as well as the interior, furnishes many other interesting examples of how men have used some resources, and ignored or partially overcome many handicaps which would be deemed insurmountable in some more favored spots. Thus, there are the problems of tides at Anchorage, so high and strong that most insurance companies refuse to assume the risk of ocean vessels. Vessels dock at Seward, and provisions are shipped to Anchorage

by rail. There is also the flood hazard at Valdez, which has necessitated the building of levees to protect this settlement from the August floods of nearby glaciers. The ample supply of water from the gravels of the outwash plain on which Valdez is built and the natural harbor more than compensate for the dangers from floods. Ingenious, too, is the platform of planks that serves as two tennis courts erected over a part of the rocky coast where Cordova is built. Cracks between the planks facilitate air circulation and drainage and thus help dry out the timbers, while discarded fish nets, on a framework of saplings, form the back stops for the courts.

Thus, undaunted, these pioneers play and work. It is not all makeshift and for the present, as some planning for the future is evidenced in some of their constructive measures for salmon conservation and in their plant and animal breeding experimentation at the Alaska Agricultural College. Their philosophy of life is tuned to the rigors these few widely scattered people have to meet. It sustains them until death. Nowhere is this philosophy better illustrated than in the territorial home for aged men in Sitka. The building is near the sea. The rooms of the sailors and fishermen look out toward the sea; those of the prospectors face the hills. One looks in; the other, out.

OFF THE BEATEN PATH TO CHIHUAHUA, MEXICO

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Adams State Teachers College, Alamosa, Colorado

Many travelers over the Golden State Route stop over at El Paso to visit Juarez, across the Rio Grande in Old Mexico. Few penetrate farther south, and almost none reach Chihauhua City, 250 miles south of Juarez, even tho it is capital of the largest state in Mexico and metropolis at one time of the whole New Spain area. This is largely due to the fact that passenger trains, both to and from Mexico City on the National Railways, reach Chihuahua at midnight, a time when the tourist is unlikely to gather any definite impressions of the city, and due also to the lack of a highway for motorists. Now a motor road is "under construction" parallel to the rails. For eighty-five miles there is gravel surface, then follow one hundred miles that are barely surveyed, and the last seventy-five miles are in fair condition, but south of Chihauhua City there is almost no road at all. For perhaps a decade to come traffic for Mexico City will be routed over the Pan-American Highway. However, road crews are stationed along the unfinished portions of the Juarez-Chihuahua route; and the work goes on slowly, and embankments may be washed away before bridges and culverts have been constructed. Politics are probably behind the delays and inefficiency of the contractors.[1] Even thus, Chihuahua can be reached by motor car.

THE ROAD TO CHIHUAHUA CITY

In dry weather the drive is not difficult. I have covered the distance in six hours, but it may take twenty hours or an indefinite time. Repair parts or service cannot be found anywhere along the route. Small downpours make the road into an extended lake, hence, the only regular traffic is in ramshackle busses or by covered wagon. On Fiesta Day last September there was only one American registered car in Chihuahua City.

For a third of the way the road follows an extension of the West Texas plains; all is arid, while sand dunes and lava bluffs are the only landmarks. In a few irrigated areas, excellent cotton grows. For the remainder of the journey the route crosses a higher plateau, perhaps thirty miles wide, rising on the west to the foothills

[1] The Pan-American Highway was supervised for some time by the treasurer of the National Railways. This fact probably explains why most of the construction was finished one or two years behind schedule.

of the Sierra Madre Occidentale. This area seems to include some of the finest pasture land in North America, a year-round range with the summer grass two or three feet high. Rainfall is below twenty inches, and the fine condition of the land is probably due to moderate grazing. Indeed, altho run-off is rapid, and the subsoil seems to be mostly gypsum or impermeable clay, there is no sign of the erosion that is converting much of the United States into desert. The country seems almost unoccupied: perhaps once in fifteen miles a lateral trail leads to some rancho; the railway stops are merely cattle loading stations; only one windmill is seen, and there are but three fence-lines. Not much attention has been paid to breeding cattle: there are a few black Angus herds but most of the steers are of mixed blood, with strong traces of the old longhorn.

Chihuahua City lies in a low, well-watered basin, surrounded by higher summits, a site like that of Monterrey, N.L. While it serves a huge ranching area, it grew up two and a half centuries ago as a mining town. The Santo Domingo and Santa Eulalia mines, southeast of the city, have produced fabulous wealth and are still far from exhaustion. The American Smelting and Refining Co.'s smelter, largest in the world, had an output in 1934 averaging 10,000 tons of refined lead alone a month. Its staff of engineers and thousands of workmen live in a company suburb, ineptly named Avalon, five miles below the city. A small tax on the Santa Eulalia mine built the huge Cathedral of San Francisco, completed in 1789, and perhaps the finest in northern Mexico. Today American capital, controlling the Chihuahua mines, those at "Cusi" (Cusihuirachic), and others in the high Sierra, supplies much of the state revenues.

Modern Conditions in Old Mexico

The city itself is truly a part of Mexico. It does not, like Juarez, hold out constant bait for the tourist. In fact, native art work is hard to find, and hotel accommodations are limited; yet the streets are cleaner than these in the Federal Capital, and excellently paved. Fine public buildings surround the two plazas, and there are thirty schools including the new Instituto Cientifico y Literario. The revolutionary government's program of universal education is far under way. At the same time, religious education is forbidden and religion itself so weakened that I do not remember seeing a young person in the cathedral.

There are two large public markets and many blocks of stores.

In the latter, almost all types of standard merchandise are for sale. There are agencies for Ford, General Motors, and Studebaker. Tires, high-grade hardware, most precision machinery, and pharmaceutical goods such as cattle serums, are imported from the United States. The camera and film market is being lost to the Germans, and there are English textiles for sale, along with German cut glass and Czechoslovakian pencils. To an amazing extent, however, Mexico has become industrially independent. Domestic paper goods, ready-to-wear clothes, shoes of all grades, and canned foods have forced out imported brands. American residents until recently smoked American cigarettes but, today, they invariably prefer Mexican cigarettes that are comparable in flavor and cost one-fifth as much. The Hollywood film monopoly has been broken, tho such box-office stars as Gable, Astaire, and Crawford will usually fill a theater. During September, 1936, a Gaumont-British, a German, a French, and several Mexican productions appeared at the principal show-house. Among the Mexican pieces was a musical comedy, a version of Dracula, and a frankly propagandist Workers' film, Lo Minimo Del Salario. Photography, direction, and acting are imitative and inferior, yet the innate artistic ability of the Mexican people will no doubt help them to create, in time, standards of their own in the theater.

CHIHUAHUA AND NEW MEXICO

The State of Chihuahua, with 95,000 square miles and a total population of half a million, supports five persons to the square mile, as against three in New Mexico. Chihuahua City, with 50,000 people, is twice as large as Albuquerque; and the ranking cities of Juarez, Jimenez, and Parral are larger respectively than Roswell, Santa Fe, and Las Vegas. The states of Chihuahua and New Mexico are closely comparable: contiguous for 150 miles, they are similarly intersected by the continental divide and drained by the Rio Grande. Chihuahua City (elevation 4400 feet) has about the altitude of Albuquerque. Each state is dependent upon livestock-raising and mining, and each shares the Spanish historical tradition. New Mexico in 1934 supported 1,225,000 cattle and 2,750,000 sheep, two and a half times as many cattle and twenty-five times as many sheep as Chihuahua. These figures indicate how American ranchmen have forced their range, and why pasturage is still luxuriant south of the Rio Grande. Mining tells a different story. New Mexico's 1929 mineral output of $30,000,000 was only two-thirds of

Chihuahua's.[2] Yet the Mexican state levied taxes in 1934 of $750,000, less than enough to support the state university at Albuquerque, and only one-twentieth of New Mexico's assessment.[3] Small wonder that the government of Mexico emphasizes low taxation in trying to lure American capital across the border!

Mexican vs. American Standards

Comparison of the two principal cities furnishes an interesting study of living standards. The city of Chihuahua has perhaps a tenth as many telephone subscribers; it is without a department store, an elevator, or a tall building; its principal structures, dating to the time of Diaz are heavy, low, and recessed, adorned with gargoyles and wrought iron. Chihuahua has relatively one-fifth as many automobiles, one-half as many doctors as Albuquerque; its primary teachers receive twenty-one American dollars a month; its workmen's daily wage would buy them but three gallons of gasoline or four tickets to the moving pictures. A new Chevrolet would cost five years' income. Thus, the Mexican citizen would seem to have attained about half the American's standard of living.

On the other hand, Albuquerque has no opera house nor marble casino; it publishes fewer newspapers, if better ones; its residences are far more up-to-date than Chihuahua's, tho it can show nothing equal to the splendor of the Terrazas estates. It is also less self sustained. Chihuahua, with a large brewery, railway shops, two clothing and one shoe factory, as well as thirteen other assorted small industries, has merely begun to supply the local market. Unemployment is rare. Deposits in the Banco Comercial increased from one million pesos to two and a half million in the year 1935. Prices of wool and meat in Chihuahua are high tho production costs are ridiculously low; an acre of fine grassland may be bought for about the price of two pounds of beef on the hoof. A young American graduate would find the opportunities in Chihuahua brighter than those at home, but, unfortunately, the Mexican government issues no new passports to foreigners for more than three months' residence.

A Center of Historical Interest

The climate of Chihuahua City is more temperate than that of

[2] Giving the peso its old value of 50¢.

[3] Valuing the peso at 28¢, the present figure. It should be added that the Federal Government in Mexico contributes heavily to state education.

El Paso, yet almost never cold. The continental divide, with some of the finest scenery in the Rocky Mountain region, is but forty miles away. There is more of historical note here than anywhere else in the Rio Grande basin. In colonial days Chihuahua was the great outpost of Spanish civilization on the Comanche-ridden plains. As the political center of the North, it has fomented every revolution against the central government of Mexico. Here Hidalgo, father of the independence movement, was captured in 1810. His prison cell has been incorporated into the new Federal Palace, and a huge monument in the center of the main plaza marks where he was shot. Benito Juarez made Chihuahua his capital in 1864. Diaz settled large colonies of American Mennonites and Mormons along the Conchos River. He also granted six million acres of northern Chihuahua State to his friend Don Luis Terrazas, who became cattle king of the world and one of the most vivid and powerful aristocrats of all time. A peon child, born not far from the Terrazas estates, grew up to destroy the feudal system in Mexico; twenty years after the revolution, ruined haciendas and crumbling mansions recall the raids of Pancho Villa. Hoping to set up his own dynasty, Villa began a fifty-room palace, never completed, in Chihuahua City, and built a splendid mausoleum which he was destined never to occupy. As late as 1929 the Escobar revolt, designed to bring about the independence of the North, centered in Chihuahua. The city's past is, thus, full of unrecorded drama. Its future seems brilliant. The American visitor finds a ready welcome and a rich experience.

INTEREST-STIMULATING DEVICE

An Experiment in Map Making in a Junior High School

The value of map making by graded school pupils has long been recognized in the Milwaukee school system.

The past year Steuben Junior High School undertook an experiment in the making of maps in the geography classes. It was an experiment to see whether the influence of the many other activities of the school would off-set previous interest in map making in the grade schools. It was also a challenge to see whether enough interest and activity could be aroused so that geography classes would be more than formal reading and recitation. With the knowledge that the former grade pupils were in a new environment, that the pupils were more mature, and that there were twenty-six different kinds of club activities in the school, all of which had strong drawing power, the map making experiment was begun.

I chose my 8A geography class because it was comprised of a heterogeneous group, which included pupils of low and high I.Q. ratings, thereby being a cross section of representative students.

The question of map making was put up to the pupils with the remark also that 99 per cent of the work would necessarily have to be done after school, before school, and during the noon hour. The response was highly gratifying, there were many more volunteers than we could use at any one time. Paint brushes, show card paints, and cardboard 21 by 27 inches were supplied. A lantern was used to project the maps chosen for enlargement.

It was interesting to note that pupils who were lax in class room discussion were among the first to volunteer their services. These students took a more active part in class discussion as a result of their participation in map making.

The results of this successful map making experiment in a junior high school, may be summarized as follows:

1. The class became very conscious of the different types of boundary lines.
2. The maps served as a class project and the pupils were proud of them.
3. Other geography classes became interested and started to make maps of their own volition.
4. Interest was keen, since the work was done in spite of the other attractions of twenty-six club activities.
5. Without exception the pupils always stayed longer to complete the map work.
6. The class enjoyed motivation and actual use of their own maps.
7. The procedure of map making was explained to other pupils, in other rooms, at their own request.

I am personally convinced that any activity that will arouse interest and stimulate enthusiasm in a subject is worthwhile to the pupils as well as to the teacher.

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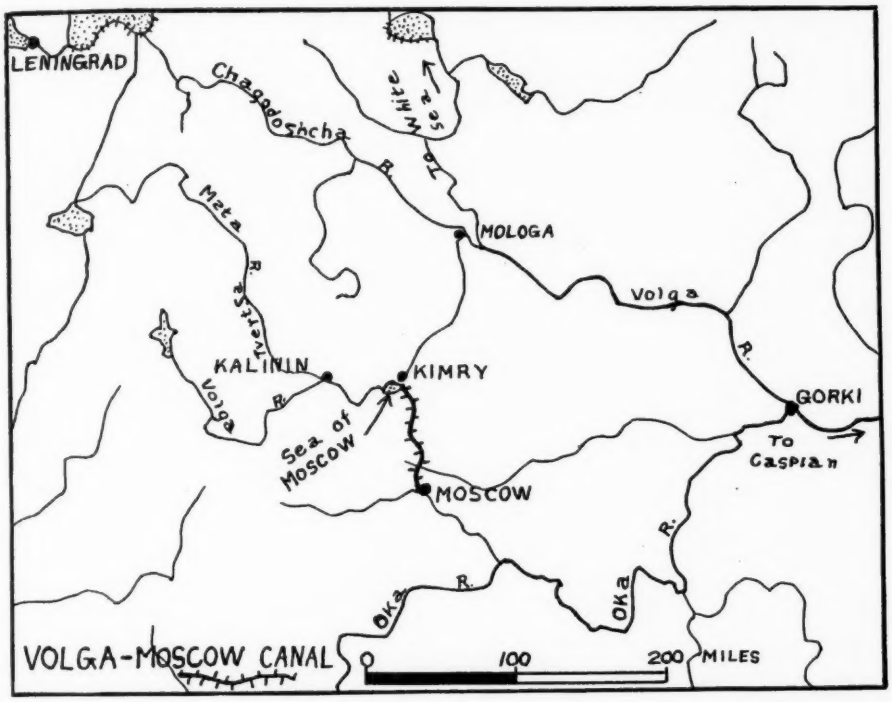
EDITORIAL NOTES AND NEWS

The accompanying sketch map shows the location of the new Volga-Moscow canal which has been opened to traffic recently. The canal extends from the town of Kimry, on the Volga, to Moscow and is 79 miles long. The difference in water level of 163 feet was overcome by the construction of 11 locks. The work was done in five years and included the erection of 4,077,000 cubic yards of concrete work and the removal of 199,000,000 cubic yards of earth material. It is now open to ships not exceeding 18,000



tons displacement and 4.5 meters draught. The canal reduces the navigable waterway between Moscow and Leningrad by 680 miles, and that between Moscow and Gorki (Nizhni Novgorod) by 68 miles. At the entrance of the canal near Kimry a large reservoir has been created which is 126 miles in circumference. This reservoir has been named the "Sea of Moscow." This basin was formerly occupied by the town of Korcheva, which was nearly a thousand years old, as well as four villages and 4,500 farms. The Sea of Moscow makes it possible for large river boats to navigate the upper portion of the Volga as far as Kalinin (Tver).

New geographical records are being made frequently these days, especially by the Soviets. The airplane trips from Soviet Russia to the United States have attracted great attention. Second in interest is the party that will spend the winter at the North Pole. On May 21, the party landed on an ice floe about 12 miles from the North Pole. After establishing a camp for the four scientists who are to remain, the airplanes returned to Moscow. By June 21, the ice floe had drifted to approximately Lat. 80° 10′, Long. 0°. At the time of writing, this is the last report available. Communication with the polar

camp is being maintained by wireless. The ice floe appears to be traveling at approximately four miles a day. It covered a distance of about eighty miles in a southeasterly direction and then drifted towards the east. While present information is inadequate proof, this shift in direction appears to confirm the theory of a circular polar current in the polar basin.

Other interesting data have already been collected. An ocean depth of 14,350 feet has been measured. This measurement was taken on June 20. Temperature data are also very interesting. Beneath the top layer of water and down to a depth of 760 feet a temperature of 28.75°F. was found; between 760 and 1,830 feet was a layer of relatively warm water, having a temperature at 1,220 feet of 33.7°F. Below 2,285 feet the temperature falls gradually to 30.4°F. at a depth of 8,930 feet. The thermometers were unable to stand the pressure at the bottom of the ocean and hence no official records were obtained as the instruments were broken.

DR. J. W. HOOVER reports that, beginning this year the city of Phoenix, Arizona, is expanding the geography course to include the eighth grade. The state course does not call for geography beyond the seventh grade. The expansion of subject matter will affect particularly the fifth grade, and the program is pushed upward to include the first semester of the eighth grade. In the second semester of the eighth grade, the geography of Arizona will be studied in correlation with Arizona history. The other school systems of Maricopa County are generally falling in line with the Phoenix plan, and we believe the rest of the state will follow suit. Maricopa County includes about one-third of the population and schools of the state. The Arizona branch of the National Council of Geography Teachers has been active and an important factor in bringing about this expansion of the geography course in which geography will replace General Science and Spanish.

DR. EUGENE VAN CLEEF, Ohio State University, was recently honored by the President of the Republic of Finland with the Cross of Knight I Class of the White Rose of Finland, together with a diploma pertaining to the decoration. This honor was granted in recognition of Dr. Van Cleef's research and publications dealing with the geography of Finland and the settlement of Finns in the United States. The decoration bears a Maltese Cross with the White Rose of Finland in the center, and the Finnish Coat of Arms in gold tracery between the arms of the cross.

The Nebraska State Council of Geography Teachers, together with the Nebraska Academy of Sciences, sponsored in May three half day sessions with programs devoted to geography and related subjects. A tea and luncheon were other features of the meetings.

DR. J. W. COULTER of the University of Hawaii left June 25 for a three months' study of land utilization for Pago Pago in American Samoa. He will then visit British Samoa and Fiji and outlying islands, and then continue his land utilization studies in New Zealand. Following a series of lectures at the University of Sydney he will proceed to Papua, Netherlands Indies, Singapore, India, Netherlands, England and Ireland. He will return to Hawaii in September by way of the United States.

DR. GEORGE D. HUBBARD, Emeritus Professor of Geography and Geology of Oberlin College, taught during the past summer at Harvard. At the close of the summer session he sailed for China where he will teach for a year or more in Yen Ching University in Peiping.

ANNUAL MEETING OF THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

The annual meeting of the National Council will be held at the University of Michigan, Ann Arbor, on December 27 and 28. Professor James of the Department of Geography has assured us that accommodations for visiting geographers will be provided at the Michigan Union on the University campus.

A considerable portion of the program will center around Researches Needed in the Teaching of Geography. The various fields of instruction including college, secondary, and elementary levels will be represented on the program.

It is hoped that everyone interested in the improvement of geography teaching will participate in outlining a program of research that the National Council can successfully sponsor. Research in the teaching of geography is an essential part of progress. You are urged to help make this a notable year in the history of the National Council. Your presence and participation in the deliberations of the organization are earnestly solicited. See additional particulars in the October issue of the JOURNAL.

EARL E. LACKEY, *President*

GEOGRAPHICAL PUBLICATIONS

The Future of the Great Plains. Report of the Great Plains Committee. 194 pp., ills., maps, graphs, tables. Washington, Dec. 1936. Price 40 cents.

Because for more than half a century settlers have been trying to farm the Great Plains as they were brought up to treat the more humid areas in the East, our Government is today faced with the problem of undoing, in part at least, the work of hundreds of thousands of farmers. It was to study the present situation and to propose means for making the best use of the region that in the summer of 1936 the President appointed the Great Plains Committee.

In drawing up its report, the Committee has included an excellent summary of the physical background of the problems now facing the Great Plains farmers. Climatic variability is stressed thruout because, had it not been for occasional years of abundant rainfall, the region would presumably long ago have been abandoned except for grazing. The discussion of physical characteristics is followed by a section on "Use and Misuse of Land and Waters," emphasizing particularly the effects of misuse. Part III, "Program of Readjustment and Development," contains some sane suggestions and thought-provoking ideas for Great Plains people. A long series of appendices includes examples of what has been done in small experimental areas in the region and summaries of pertinent legislation which has been enacted in some states. Essentially, the question of what to do with the Great Plains lies in the land and water as used and misused by man.

This report should be of special interest and value to teachers of rural pupils in the Great Plains, most of whom, presumably, will in later years attempt to make a living in the region. Any alert teacher will find "The Future of the Great Plains" full of stimulating material for project work and class discussion. For the younger classes there is the background question of why their fathers are having such a hard time getting a fair crop of wheat, or keeping the soil from blowing away, or finding enough water for thirsty livestock. For the older pupils there is the problem of what to do about it—and a few of them might be stimulated to try out the suggestions and follow examples given in the report.

JOHN KERR ROSE

Washington, D.C.

W. R. McConnell. **Living in Different Lands, Living in the Americas, Living Across the Sea,** and **The United States in the Modern World.** Rand McNally and Company, 1935.

This series of elementary textbooks is both simple and interesting. The books are attractive from the standpoint of pictures and print and, in my judgment, are written at the grade level for which they are intended.

The first book of the series, *Living in Different Lands* presents the material for fourth grade in what I consider the most logical order. The relationship idea is used thruout the book without, in the least, seeming to be forced. It contains one hundred ninety-three pictures, about thirty maps and several diagrams.

Living in the Americas, the second book of the series, begins the study of the United States with the New England section. This section is considered the most complex area of our country. However, McConnell's method of handling the material in this order appears to work out a sequence which is understandable for fifth grade children. The book is well illustrated containing two hundred forty-five pictures, four diagrams, and ninety-two maps besides a number of outline maps. It seems to me that

the United States receives excellent treatment at the expense or sacrifice of South America in this book. I regret that the author did not place South America at fourth level difficulty.

Living Across the Seas contains two hundred twenty-seven pictures and about one hundred fifty maps, grafs, and diagrams. The continents presented in this book are Eurasia, Africa and Australia in the order named.

Over three hundred pages are devoted to Eurasia, divided into nineteen units of work; Africa one unit, thirty pages in length; and Australia one unit, sixteen pages in length. The tests and exercises given at the close of the units are helpful. It would seem that the treatment of Africa at fourth level should be given more space.

In my evaluation, the author may be even more highly complimented on the fourth book of the series, *The United States in the Modern World* than on any of the others. The organization has eight big units of work, for each a preview is given. Many good thought-provoking questions are given under the heading "Exercises and Problems."

This book provides material for a world trade review using the United States as the center for world trade. More than thirty grafs provide helpful visual aids, together with one hundred ninety-five pictures, one hundred thirty-two maps, and forty-one diagrams.

A large proportion of the material in these four books is so presented by the author that it will almost teach itself, and certainly these books will enable a conscientious teacher to do a good piece of geography teaching.

ANNA C. LARSON

State Teachers College,
St. Cloud, Minn.

Mildred Houghton Comfort. The Peter and Nancy Travel Series. **Peter and Nancy in Europe,** 212 pp. 1935. 80c; **Peter and Nancy in Africa,** 287 pp. 1935. 85c; **Peter and Nancy in South America,** 256 pp. 1935. 85c; **Peter and Nancy in Asia,** 286 pp. 1937. 85c. Beckley-Cardy Company, 1632 Indiana Avenue, Chicago, Illinois.

The books in this series tell many interesting things about people and places visited by Peter and Nancy, two Minnesota children, who travel with their Uncle Lee, a newspaper representative. The stories are told largely in conversation between the three chief characters and between the children and people they meet on their travels. It is thru the conversation that the young reader gets the feeling of actually traveling with the children and becoming acquainted with the people and places visited Different ways of travel—by ship, train, automobile, airplane, camel caravan, safari, donkey, and stage coach—all are made very real for the young reader.

From the experiences of the two children, the reader gains some very intimate glimpses into the lives of the people. The reader goes with the children to teas and to dinners and sees how people live in their homes in various parts of the world. The stories help to break down some unfortunate generalizations which children frequently make. In their Holland visit the little girl says, "It's as hard to get a sight of wooden shoes here as to see kilts in Scotland." Over and over again the concrete is emphasized. The boy says, "It was fun crossing the Arno River and remembering that it was just a little black line in northern Italy on the maps of the geographies." Again in Norway he says, "I don't see how any map-maker could keep track of the islands. There are every size, I believe, from islands big enough for farms to mere pieces of rock sticking up out of the ocean." There are many opportunities to help build up respect and appreciation for other people. The uncle asks the children the size of their garden plots on their Minnesota farm and gives them his reason for asking: "Because I want you to get some idea of what the Danes can do. Many of their farms are only an acre and

a half. Forty acres would be considered an immense farm." Again, when Nancy remarks at Calcutta, "The next time I see a gunny sack back home, I'll remember the delta farmer and the work he has to do to grow jute and to strip it." Another example is found in the Argentine pampa where we read "The wagon stood outside the station with three yoke of oxen. The wheels were fully ten feet high and the gaucho explained that they were very satisfactory either when the dust was deep or the road muddy."

The books are attractive and well suited for supplementary reading in intermediate and upper grades. Naturally, in such readers, there are details mentioned that have not high geographic value, but the readers contain much of the kind of material which children can readily enjoy when they bring to the reading a basic understanding gained from their geographic study of the regions concerned.

EDNA E. EISEN

Kent State University
Kent. Ohio

Louise A. Boyd. **Polish Countrysides: Photographs and Narrative.** Special Publication No. 20 of the American Geographical Society, New York, 1937.

Polish Countrysides is an admirable pictorial representation of Poland, particularly of the eastern portions of the country. A total of 495 figures, consisting of 9 maps and 486 excellent photographs, are found in the volume. These are accompanied with a running account of the travels of the authoress in Poland. The trips, in private car, were taken both preceding and following the 1934 meeting of the International Geographical Congress at Warsaw. A wealth of material is provided the regional geographer by both pictures and text. The volume also contains a chapter on rural Poland, contributed by Dr. Stanislaw Gorzuchowski of Warsaw.

The photographs deal principally with rural Poland, and have been grouped both topically and by regional locations. The pictures are excellent, and preserve many scenes of the Poland of 1934 for posterity. The professional geographer will be most interested in many of the fine landscape views, especially those in the hillier southern portion of the country. Pictures of individual peasants and groups of peasants are numerous, and offer a fertile field to the student of dress and of individual types.

The maps of the volume have been selected with reference to the special needs of geographical study, and, in association with the pictures, offer a wealth of basic pictorial material for the student of regional geography.

It is perhaps to be regretted that there are not more pictures of the highly developed area of Polish Silesia, but, as the authoress explains, the omission was due to a camera accident beyond her control. The effect, however, is that the less developed eastern provinces, such as Polesia, are profusely illustrated, whereas the highly developed western regions have but few pictures. This situation, however, is not serious since the avowed intention of the volume is to "illustrate the old rather than the new, the rustic and primitive rather than the urban and cultivated."

LOYAL DURAND, JR.

University of Wisconsin

W. R. Thompson. **Moisture and Farming in South Africa.** 256 pp., 34 illustrations. Agents, Gordon & Gotch Ltd., London. 1936. $2.15

Here is a series of neat summaries of the critical problems of moisture and farming in South Africa, easily understandable to laymen, supplemented by detailed arguments and observed data exhaustive enough to satisfy experts.

Questions such as the effects of grass burning, the degree of soil erosion, changes of

climate, and schemes for increasing moisture are among those discussed. All of these have pertinent bearing on problems of our own dry Southwest.

Altogether a first-rate book for anybody interested in the geography of Africa or in conservation of soil and water.

DERWENT WHITTLESEY

Harvard University

Eyler N. Simpson. **The Ejido, Mexico's Way Out.** 849 pages, 40 maps and charts, and other illustrations; an appendix containing 93 tables, a check list of the principal agrarian laws, Article XXVII of the Political Constitution of the United Mexican States, and the Agrarian Code; selected bibliography and index. The University of North Carolina Press, Chapel Hill, 1937. $5.00

The word ejido is used in Mexico to refer to all types of lands which have been restored or granted to agricultural communities under the land reform initiated in 1915. By extension, the word also refers to communities possessing such lands.

The problems involved in the distribution of the Mexican agricultural lands are admirably set forth and analyzed by Eyler N. Simpson in The Ejido, Mexico's Way Out. Mr. Simpson has spent eight years in Mexico representing the Institute of Current World Affairs. He has traveled about the country, mingled with the people, studied their activities, and gained an understanding of their ways of thinking.

The subject material of the book is divided into three parts. Part I explains the origin of the ejido, the struggle for land, the early course of the agrarian reform and its course between 1929 and 1933. Part II analyzes the problems involved in the distribution of the land and the development of the ejido after establishment. Location, topography, quality of the soil, rainfall, and drainage affect the distribution of the land. Political intrigue and legal obstruction are barriers to be surmounted. After the land is definitely distributed the new occupants must be taught better methods of tillage, the effect of fertilization, and methods of combating plant diseases and destructive insect life. The ejidotarios, as the occupants of the ejidos are called, have little in the way of implements or machinery. Such equipment must be furnished them by means of agricultural credit which involves methods of financing. Means of transportation must be provided that the products of the ejidos reach the best markets. Rural schools, hospitals, and instruction in sanitation are a few of the other problems to be faced. The mere giving of the land into the possession of those who work it is but the first of a long series of steps to rehabilitate the rural citizens of Mexico. Part III discusses the future of the ejido, the effects of industrialism, and sets forth the author's plan for stabilizing the process of land distribution and ejido development.

The book represents an enormous amount of work well done. It contains so much material of value to anyone interested in really understanding Mexico, it is difficult to avoid the use of superlatives when referring to this material. The book is tedious reading because Mr. Simpson has endeavored to present every law, every fact, and every statistic that the reader may lack no tool essential in gaining knowledge of the origin, the progress, and the future of land distribution in Mexico.

The author's analyses of some of the ejidos he has studied contain very interesting descriptions of Mexican rural life. Appendix A, with its 93 tables of statistical material, provides useful information concerning conditions in Mexico. The book is illustrated with well-chosen photographs, and forty maps and charts of exceptional clearness.

BEN F. LEMERT

Duke University

NEW PUBLICATIONS

E. M. Rowalt, and Others. **Soil Defense in the Piedmont.** Farmers' Bulletin 1767. 63 pp. Illustrated. U. S. Dept. of Agriculture. Superintendent of Documents, Wash., D.C. 1937. 15 cents

A summary, written in popular style, of the history and cause of erosion in five southeastern states, the extent of the erosion damage, and descriptions and discussions of modern erosion control methods, in coöperative farmers associations as well as federal and state agencies. A major erosion control project for each state has been included because it typifies practices applicable thruout the piedmont section of each state.

Transportation Lines on the Mississippi River System. 1936. Transportation Series No. 4. 124 pp. Illustrated. The Board of Engineers for Rivers and Harbors, War Department, Supt. of Documents, Washington, D.C. 1936. 25 cents

Information regarding all vessels and their operations during 1935.

Michigan Papers in Geography. Vol. VI. Eugene S. McCartney and Robert Burnett Hall, Editors. 444 pp., maps and plates. Illustrated. Department of Geography, University of Michigan, Ann Arbor. 1936. $1.50

Papers read before the Geography Section of the Michigan Academy of Science, Arts and Letters during the 1935 meeting and reprinted from papers of the Michigan Academy of Science, Arts and Letters, Vol. 21, 1935.

Albert Herrmann. **Atlas of China, Historical and Commercial.** 112 pp. Harvard-Yenching Institute. Monograph Series, Vol. 1. Harvard University Press, Cambridge, Mass. 1935. $5.00

Eighty map plates, a selected bibliography, an index of geographical and proper names, and a list of Chinese characters.

J. Stephenson. **The Land of Britain.** Part 78, Berkshire. Historical section by W. G. East. L. Dudley Stamp, Editor. 113 pp. 5 charts. Illustrated. The Land Utilization Survey of Britain, London School of Economics, London. 1936

One set of maps shows geological formations, relief, soils, and climate; another, the use to which the land is put. By interpreting and synthesizing the distributions, certain marked regional contrasts stand out which the author uses as a basis for the delimitation of the county into 25 agriculture regions.

Jerome Namias and others. **An Introduction to the Study of Air Mass Analysis, with an Appendix on Characteristic Properties of North American Air Masses by H. C. Willett.** 84 pp. Illustrated. Third Edition, Enlarged and Revised. The American Meteorological Society. Milton, Mass. July, 1936. 60 cents

E. Markus. **Geographische Kausalitat.** 202 pp. Illustrated. K. Mattiesens Buchdr. Ant.-Ges. Tartu, Estonia. 1936

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The Soil Conservation Service and Its Work. By Helen M. Strong .. 249

Dr. Strong is in Charge of the Educational Relations of the Soil Conservation Service, in Washington. She spent most of the past summer in the field studying the problem of conservation.

This is the third in a series of articles dealing with conservation which have appeared in the JOURNAL. This article will give to the active teacher a substantial body of material which she may use. Dr. Strong will be pleased to co-operate with teachers thruout the country in their problems of teaching soil conservation.

Merseyside. By Luella C. Nolen 261

Miss Nolen is teaching geography in the Conroy Junior High School, Pittsburgh, Pennsylvania. She completed work for a Master's degree at the University of Chicago, and is continuing research studies in the University of Pittsburgh.

This is an additional article in our European series. The next article in this series will present an interesting picture of a large estate in Poland, and is contributed by Dr. Loyal Durand.

Iguala: A Town in Southwestern Mexico. By Ben F. Lemert and Rose V. Lemert 269

Dr. and Mrs. Lemert need no introduction to JOURNAL readers. They have contributed numerous articles on Mexico. Dr. Lemert is now an assistant professor of economic geography in Duke University. Another article will deal with an interesting trip up Mt. Popocatepetl.

Egypt's Place in the World Cotton Drama. By Ralph S. Harris 278

Mr. Harris is a teacher of geography in Westport High School, Kansas City, Missouri, and a frequent contributor to educational geography.

The Riddle as a Geographic Teaching Device. By Arthur C. Selke .. 283

Dr. Selke is head of the Department of Geography, State Teachers College, Dickinson, North Dakota, and a contributor to the JOURNAL and other educational magazines.

Interest-Stimulating Devices. By T. W. Birch 285

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Contents of the JOURNAL are indexed regularly in the *Educational Index to Periodicals.*

Authors alone are responsible for opinions and statements in the JOURNAL.

THE WORKING WORLD

AN ECONOMIC GEOGRAPHY

By RAY H. WHITBECK, Professor of Geography, LOYAL DURAND, Jr., Assistant Professor of Geography, and JOE RUSSELL WHITAKER, Assistant Professor of Geography,—all of the DEPARTMENT OF GEOGRAPHY, UNIVERSITY OF WISCONSIN

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